

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application. The following listing provides the amended claims with the amendments marked with deleted material crossed out and new material underlined to show the changes made.

Listing of Claims

Claims 1-9. (Canceled)

10. (Currently Amended) A method for maintaining a trajectory of a ~~first~~ tracked first instrument toward a target site in a human patient, as the ~~first~~ tracked first instrument is moved in space toward the target in the patient, the method comprising:

(a) using a ~~second~~ an image capture second instrument to construct an image of the target site that is defined by reference to an image-coordinate system;

(b) correlating the image coordinate system with an instrument coordinate system to place the target-site coordinate in the instrument coordinate system;

(c) determining whether the target site has moved off the ~~first~~ tracked first instrument's trajectory towards the target site;

(d) after determining that the target site has moved off the ~~first~~ tracked first instrument's trajectory towards the target site, computing a correction to the orientation of the ~~first~~ tracked first instrument to re-orient the first tracked instrument towards the target site; and

(e) using the computed correction to correct the orientation of the ~~first~~ tracked first instrument to maintain the ~~first~~ tracked first instrument's defined trajectory towards the target site even as the ~~first~~ tracked first instrument is moved in space.

11. (Previously Presented) The method of claim 10, wherein the movement of the target site is initiated by the patient.

12. (Previously Presented) The method of claim 10, wherein the movement of the target site is only initiated by the patient.

13. (Currently Amended) The method of claim 10, wherein the ~~first~~ tracked first instrument applies a constant pressure upon the tissue surface of the patient's body while maintaining the trajectory toward the target.

14. (Currently Amended) A ~~processor~~ computer-readable medium ~~comprising storing~~ a computer program ~~of instructions for execution~~ which when executed by a at least one processor ~~to perform a method of maintaining~~ maintains a trajectory of a ~~first~~ tracked first instrument toward a target site in a human patient, as the ~~first~~ tracked first instrument is moved in space, the computer program ~~of instructions~~ comprising sets of instructions for:

(a) using a ~~second an~~ image capture second instrument to construct an image of the target site that is defined by reference to an image-coordinate system;

(b) correlating the image coordinate system with an instrument coordinate system-to place the target-site coordinate in the instrument coordinate system;

(c) determining whether the target site has moved off the ~~first~~ tracked first instrument's trajectory towards the target site;

(d) after determining that the target site has moved off the ~~first~~ tracked first instrument's trajectory towards the target site, computing a correction to the orientation of the ~~first~~ tracked first instrument to re-orient the ~~first~~ tracked first instrument towards the target site; and

(e) using the computed correction to correct the orientation of the ~~first~~ tracked first instrument to maintain the ~~first~~ tracked first instrument's defined trajectory towards the target site even as the ~~first~~ tracked first instrument is moved in space.

15. (Currently Amended) The ~~processor~~ computer-readable medium of claim 14, wherein the movement of the target site is initiated by the patient.

16. (Currently Amended) The ~~processor~~ computer-readable medium of claim 14, wherein the movement of the target site is only initiated by the patient.

17. (Currently Amended) The ~~processor~~ computer-readable medium of claim 14, wherein the ~~first~~ tracked first instrument applies a constant pressure upon the tissue surface of the patient's body while maintaining the trajectory toward the target.

18. (Currently Amended) A device for maintaining a trajectory between a tip of a ~~first~~ tracked first instrument and a target site in a patient's body, the device comprising:

(a) an articulated mechanical arm having or accommodating a distal-end ~~first~~ tracked first instrument having a tip that has or accommodates a force contact sensor;

(b) an actuator operatively connected to the mechanical arm for adjusting the orientation of the mechanical arm, so as to maintain the trajectory between the tip of the ~~first~~ tracked first instrument in the direction of the patient target site;

(c) a tracking mechanism for tracking the orientation of the ~~first~~ tracked first instrument in an instrument coordinate system; and

(d) a processor operatively connected to the actuator and tracking mechanism for:

(d1) using a ~~second~~ an image capture second instrument to construct an image of the target site that is defined by reference to the image-coordinate system;

(d2) correlating the image coordinate system with an instrument coordinate system to place the target-site coordinate in the instrument coordinate system;

(d3) determining whether the target site has moved off the ~~first~~ tracked first instrument's trajectory towards the target site;

(d4) after determining that the target site has moved off the ~~first~~ tracked first instrument's trajectory towards the target site, computing a correction to the orientation of the ~~first~~ tracked first instrument to re-orient the ~~first~~ tracked first instrument towards the target site; and

(d5) using the computed correction to correct the orientation of the ~~first~~ tracked first instrument to maintain the ~~first~~ tracked first instrument's defined trajectory toward the target site even as the ~~first~~ tracked first instrument is moved in space outside or inside the body.

19. (Currently Amended) The device of claim 18, wherein the ~~first~~ tracked first instrument applies a constant pressure upon the tissue surface of the patient's body while maintaining the trajectory toward the target.

20. (Previously Presented) The device of claim 18, wherein the movement of the target site is initiated by the patient.

21. (Previously Presented) The device of claim 18, wherein the movement of the target site is only initiated by the patient.